

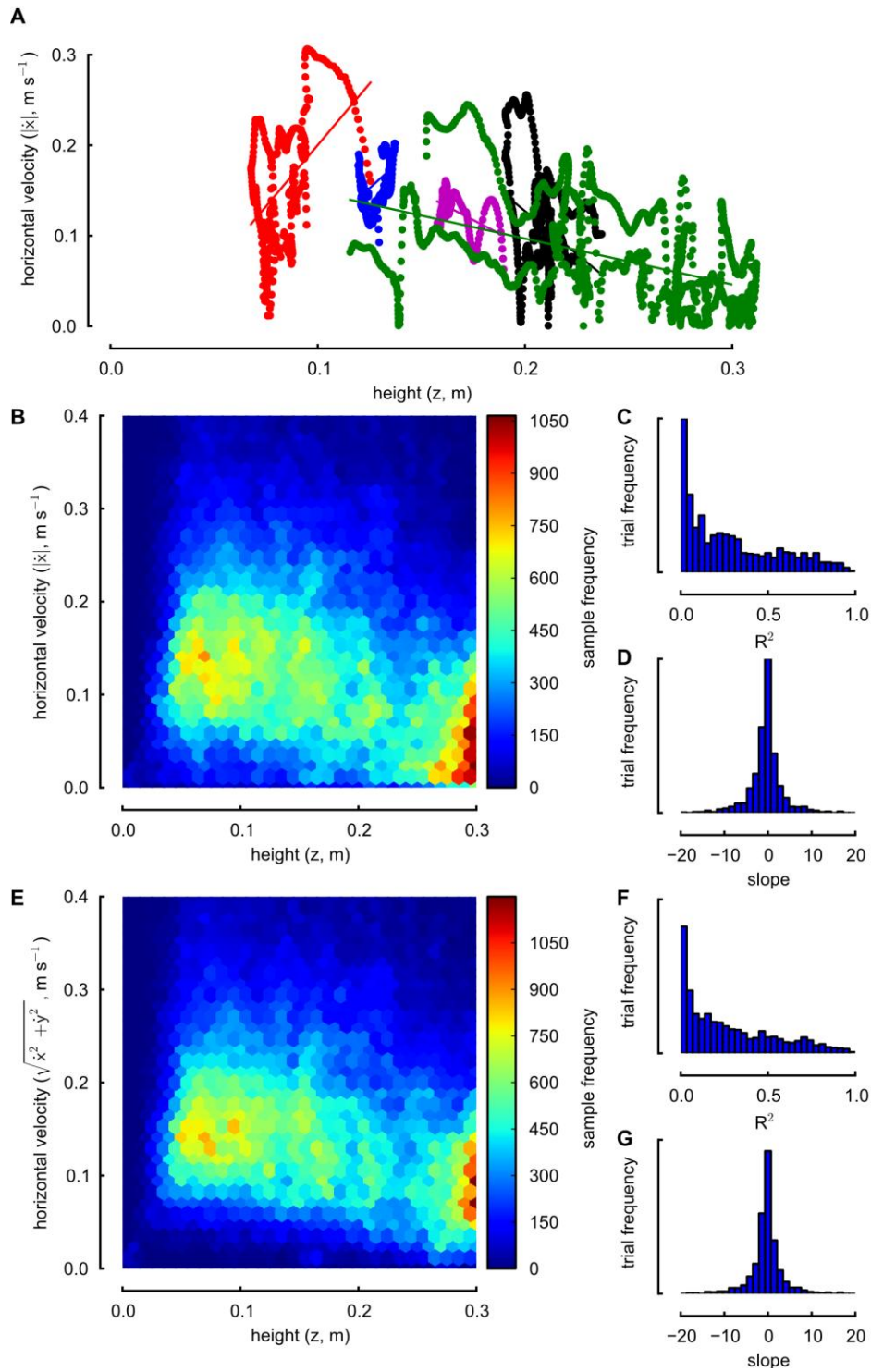
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**Supplemental Information**

**Visual Control of Altitude**

**in Flying *Drosophila***

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**Figure S1, Related to Figure 2: Flies Do Not Hold Constant a Ventral Angular Velocity**

A) Five individual trajectories (dots) and lines of best fit (straight lines), with no clear relationship between horizontal velocity and height.

B) A 2D histogram of horizontal velocity (magnitude of X velocity) and height shows no clear relationship in lower part of arena. In upper arena, flight is slower, presumably due to collisions with the invisible ceiling.

C) Coefficients of correlation between height and horizontal velocity. Most values are near zero, indicating there is little correlation between height and horizontal velocity.

D) Slope of linear least squares fits between height and horizontal velocity for trajectories in C.

E-G) As in B-D, except with horizontal velocity measured as magnitude of velocity in XY plane.  $n=1073$  for panels B-F.